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ABSTRACT

Monies granted under Title VI-B of the Education of the Handicapped Act funded an accountability study of the Duval County Program (Jacksonville, Florida) for trainable mentally handicapped (TMH) children and youth. An organized collection of approximately 675 behavioral objectives and accompanying criterion test items was developed for evaluating TMH student performance and overall program effectiveness. The objectives were incorporated in a volume of 869 instructional objectives (A Catalog of Instructional Objectives for Trainable Mentally Retarded Students) in the areas or language development, social adequacy, and vocational readiness. The behavioral objectives and criterion test items were field tested by teachers of the TMH, reviewed by experts, and compared with major curriculum guides for TMH programs. Field testing indicated that the use of criterion test items with TMH students was an expensive, time-consuming, and disruptive evaluation technique. In an attempt to establish a more functional and less expensive evaluation alternative, a checklist of 80 sample behavior items was compiled on the basis of importance ranking of skill areas by parents, teachers, and community agency personnel. Findings showed that the checklist instrument was highly reliable in and of itself and correlated very highly with the use of corresponding criterion test items as an evaluation alternative. (GW)

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SUMMARY EVALUATION REPORT
1973–1974

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ACCOUNTABILITY STUDY
FOR TRAINABLE MENTALLY RETARDED CHILDREN AND YOUTH

TITLE VI-B

DUVAL COUNTY SCHOOL BOARD
JACKSONVILLE, FLORIDA

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Summary Evaluation Report
1973-1974

Accountability Study of the Program for Trainable Mentally Retarded Children and Youth

Prepared by

William L. Geiger and Wilson H. Guertin

July, 1974

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INTRODUCTION

The purpose of this report is to provide a summary of the objectives, activities, and field-test results for the third and final year of an "Accountability Study of the Program for Trainable Mentally Retarded Children and Youth."

The Accountability Study has been carried out by the Duval County School Board, Jacksonville, Florida. Financial support under Title VI-B of the Education of the Handicapped Act was awarded the Duval County School Board by the Bureau of Education for Exceptional Students, Florida State Department of Education.

For additional information concerning this project, the reader is referred to the Clearinghouse/Information Center, Bureau of Education for Exceptional Students, 319 Knott Building, Tallahassee, Florida 32304.

BACKGROUND

In March, 1971, the Duval County School Board submitted a proposal for federal assistance under Title VI-B of the Education of the Handicapped Act to conduct an Accountability Study of the Duval County Program for Trainable Mentally Retarded Children and Youth.

The process of developing an accountability system for evaluating the program for trainable mentally retarded (TMR) students required that specific skills appropriate for this population be identified, organized, and presented in a way that allowed student success or failure to be measured. An organized collection of behavioral objectives for TMR students was developed as the basis for evaluating student performance and overall program effectiveness. For each objective an accompanying criterion test item was written. These criterion test items specified the situation, materials, and directions to be used in formally assessing student performance on a given objective. By using these criterion test items as both pre and post tests, a measure of student progress could be obtained and the effectiveness of specific instructional programs determined.

During the first two years of this accountability study, teachers in the Duval County TMR program developed and field-tested a collection of approximately 550 behavioral objectives and corresponding criterion test

items. These objectives covered skills in the areas of Social, Academic, and Occupational Competence and were arranged by content into a modular organizational model recommended by Drs. Louis Schwartz and Andrew Oseroff, Florida State University, and Dr. Charles Forgnone, University of Florida.

In an attempt to identify specific highly important objectives which could be used to sample student ability in a given skill area, each of the objectives and major skill areas in the organizational model was ranked by 122 teachers and 34 representatives of community agencies to determine the differential importance of the various skills. In addition, the 26 major skill areas were importance-ranked by 97 parents of TMR students in the Duval County program. (See Summary Evaluation Report 1972-1973.)

In order to develop a relatively comprehensive catalog of instructional objectives for TMR students, skills that had been omitted through oversight from the collection of 550 objectives needed to be identified. Three procedures were used to identify omitted skills: (1) the collection of objectives was reviewed and critiqued by 122 teachers in TMR programs throughout the State of Florida; (2) a project consultant compared the objectives in the collection with the content of over fifteen curriculum guides for TMR students; and (3) a panel of three experts in the field of educating mentally retarded students conducted a thorough review of the collection of objectives. These three activities resulted in the identification of approximately 125 new objectives which needed to be

included in the final catalog of objectives to be developed during the 1973-74 project year.

At the completion of the second project year, two major tasks remained in the development of a viable accountability system: (1) the omitted skills that had been identified needed to be incorporated into a final, relatively comprehensive catalog of objectives, and (2) the results of the 1972-73 field-test activities had to be evaluated; and the efficiency of criterion test items in assessing student performance had to be determined.

PROJECT OBJECTIVES

The overall stated objective for the 1973-74 project year was:

> "to solidify an accountability model with adequate documentation so that it can be utilized by other programs to reliably evaluate behavioral change in the trainable mentally retarded student participants."

To complete the development of an accountability model two major categories of specific objectives were identified for the 1973-74 project year. The first group of objectives focussed on revising and expanding the 1972-73 collection of objectives into a relatively comprehensive catalog of instructional objectives for TMR students and on developing a collection of instructional classroom activities that were related to the skills identified in the catalog. The second cluster of objectives for the 1973-74 project year were related to the development and field-testing of an

assessment alternative to criterion test items. The need for such an alternative was recognized when the results of the 1972-73 assessment activities indicated that criterion test items were an inefficient and disruptive means of evaluating the performance of TMR students.

A) EXPANSION AND REVISION OBJECTIVES

* To identify sheltered workshop skills.
* To write objectives and criterion test items for sheltered workshop skills.
* To develop objectives and criterion test items for the skills identified by the results of the validation techniques employed during the 1972-73 project year.
* To provide a greater number of instructional alternatives for meeting the objectives by expanding the Instructional Materials, Method-Media, and Activities section of the model.
* To revise the objectives developed during the first two project years in the areas of social, academic, and occupational competence as indicated by the 1972-73 field-test.
* To prepare introductions to both the catalog of objectives and the volume of suggested instructional materials, resources, and activities.
* To prepare a comprehensive accountability report on changes of behavior in trainable mentally retarded students.
* To provide for printing and disseminating copies of project reports, the catalog of objectives, and the volume of instructional materials, resources, and activities.

B) ASSESSMENT ALTERNATIVE OBJECTIVES

* To assist the State Assessment and State Research and Development programs in transferring the accountability model into a viable state assessment mechanism.
* To develop an evaluation alternative to criterion test items for

assessing student status and progress on program objectives.

* To compare the overall efficiency of this evaluation alternative with the use of criterion test items.

* To determine the reliability of this new evaluation alternative.

PROJECT ACTIVITIES

A) EXPANSION AND REVISION ACTIVITIES

In attempting to identify objectives appropriate for successful functioning in sheltered workshop situations, the project director visited seven recommended sheltered workshops throughout the state of Florida. As a result of these visitations, approximately 85 skills which contribute to successful performance in sheltered workshop situations were identified. The project director and a task force of project consultants transformed these skills into written behavioral objectives with accompanying criterion test items.

During the first six months of the 1973-74 project year, the project director, Duval County TMR teachers, and project consultants extensively revised and expanded the Sensory-Motor, Communication Skills, Craft Production, and Sewing and Mending components of 1972-73 collection of objectives. These modifications were based on the recommendations of Duval County TMR teachers who had field-tested the entire 1972-73 collection of objectives. During this same period, behavioral objectives and criterion

test items were also written for those skills identified through teacher and expert review of the 1972-73 materials and through a comparison of these materials with major curriculum guides for TMR programs.

All of these new and revised objectives were then incorporated into the organizational model resulting in a volume of 869 instructional objectives, A Catalog of Instructional Objectives for Trainable Mentally Retarded Students.

During the Summer of 1973, five Duval County TMR teachers worked for eight weeks identifying instructional activities, materials, and resources which would aid fellow teachers develop alternatives for instructing students in a variety of skill areas. These suggested activities, materials, and resources were expanded and revised by a project consultant during the course of the 1973-74 project year. Though extensive editing remains to be done on these materials, it is hoped that this collection of instructional suggestions will be available to teachers by September, 1975.

In early May, 1974 a project evaluation panel consisting of Dr. Harold W. Heller, University of Alabama; Dr. Oliver P. Kolstoe, University of Northern Colorado; and Dr. Bobby Palk, University of Alabama, reviewed the content of the 1973-74 catalog of objectives and the instructional alternatives developed by teachers. (This panel had evaluated the 1972-73 project materials and was thus able to adjudge the qualitative and quantitative differences in project products that had taken place during the period from May, 1973 to May, 1974.) Their report, based on a five day examination

of 1973-74 project materials, affirmed the attainment of the expansion and revision objectives of the project and concluded that the catalog of objectives might become "a major resource to persons concerned with improving educational programs for TMR children".

B) ASSESSMENT ALTERNATIVE ACTIVITIES

As a result of field-testing the 1972-73 collection of objectives and accompanying criterion test items in Duval County, it was discovered that the use of criterion test items with TMR students was an expensive, time-consuming, and disruptive evaluation technique. Since group-administered "paper and pencil" assessment is extremely difficult, if not impossible, with this population, each test item required individual administration. Substitute teachers were employed to insure the maintenance of classroom management and the continuation of instructional programming while the regular classroom teacher administered criterion test items to individual students. To maximize the opportunity to make objective comparisons across classes, consultants were hired to develop uniform assessment materials for each criterion test item. It was also necessary to employ a clerk to manage these materials and to disseminate, collect, code, and tabulate the criterion test items. In short, the use of criterion test items did not prove to be a practical means of evaluating the performance/progress of TMR students even though such instruments did possess the important construct validity desired.

It was, therefore, decided to establish a more easily used and less expensive evaluation alternative. A checklist consisting of 80 items

sampling behaviors in 19 major skill areas was developed (See Appendix A). The skill areas to be sampled were determined by asking approximately 250 parents, teachers, and community agency personnel to conduct an importance-ranking of the 26 skill areas in the 1972-73 collection of objectives for TMR students. Once a hierarchy of skill area importance had been established, specific sample objectives from each skill area were selected from an importance-ranking of objectives performed by 122 TMR teachers. (See Summary Evaluation Report 1972-73.) The most important objectives in each of the 19 skill areas as determined by this group of teachers were incorporated into the checklist. The resultant TMR Assessment-Profile represents a behavior sample composed of the most important objectives in the most important skill areas as determined by parent, teacher, and community agency personnel ranking.

Though the 80 item TMR Assessment-Profile possessed consensual validity based on the procedures used to determine its content, the overall reliability of this checklist and the concurrent validity of this instrument with the corresponding criterion test items still remained to be determined. The establishment of checklist reliability and the determination of checklist - criterion test item concurrent validity became major field-test activities in attempting to achieve the project objectives relating to the development of a viable assessment alternative to criterion test items.

EVALUATION DESIGN

Formal evaluation required statistical analysis to determine reliability and validity of the TMR Assessment-Profile. Test-retest reliability was evaluated on one sample of 113 students, and inter-rater reliability was established on a separate sample of 109 students. It was not enough to look only at the reliability of the total checklist since possibilities exist for shortening or otherwise modifying this checklist in the future. Therefore, test-retest and inter-rater reliability information were obtained for both the overall checklist and for the individual checklist items.

Comparability of the checklist and its corresponding criterion test items (See Appendix B) was evaluated by administering both instruments to a sample of 100 Duval County TMR students. The internal validity and dimensionality of both instruments were evaluated by factor analyses.

Finally, norms based upon the total of both the reliability and concurrent validity samples were established in terms of means and standard deviations as well as frequency distributions. To assist in future revisions of the checklist, the mean Mental Age and frequency distributions by Mental Age were obtained for students passing each checklist item.

The following chart illustrates the teacher - student samples used in the 1973-74 TMR Assessment-Profile field-test activities.

SAMPLES EMPLOYED

EVALUATION PROCEDURE	COUNTY	NO. OF PUPILS	NO. OF TEACHERS
Test-Retest	4 outside counties	113	29
Inter-Rater	Duval	109	27
Instrument Comparison	Duval	100	31
Norms	5 counties	328	60
MA Distribution	5 counties	396	63

SUMMARY OF FINDINGS

Checklist test-retest reliability was determined by correlating the scores assigned 113 students the first time and the scores given the same subjects by their teachers a week later. The obtained product-movement correlation of .92 attests to the basic reliability of the process of rating the subjects. Agreement between different raters (with different standards and different knowledge about the subjects) could be expected to be much lower. For 109 paired ratings the correlation of checklist inter-rater agreement was a surprisingly high .84, almost as high as the test-retest correlation.

Individual checklist item reliability computed on both inter-rater and test-retest bases was high for most items. Most ranged from .40 to .79. Only two or three items were suspiciously low on reliability. These same items tended to show rather low correlations with their corresponding criterion test items. Overall comparison between total checklist score and the total score on the criterion test items was examined. The product-moment correlation was .80. This correlation indicates that the checklist

was evaluating almost the same attribute of ability that the criterion test items were.

The question as to whether the two instruments were getting at similar abilities was examined further through factor analysis. By looking at the first principal axis, a type of item analysis was available. The justification for using a summative total score is seen in that between 41% and 45% of the common variance was contained in the first principal axis for these instruments. All checklist items had validity correlations with total checklist scores of greater than .30; most were above .50. Individual criterion test items did not have this same uniformly high correlation with the total score for all criterion test items. Some individual item - total criterion test item score correlations were near zero. However, most were fairly large as they were for the checklist item - total checklist score coefficients.

The Varimax rotated factors for checklist and criterion test items were rather different. This would indicate that while superficially the two instruments are similar, there are some basic differences in what they sample. As long as total scores are being focussed on, they are very comparable.

Since data on student and teacher variables were available, they were correlated with both criterion test item scores and checklist scores. As would be expected the pupil variables that correlated with both checklist and criterion test item scores were age and I.Q. The teacher variable

that correlated with both of these scores was grade or level taught. (As might be expected, older students received higher scores.) The data obtained were examined for distributions, and norm tables were assembled. Since the Florida State Department of Education may split the checklist into three age-relevant sublists, a further analysis was done. Students passing each checklist item (score = 3) were sorted by Mental Age into one-year intervals to illustrate the difficulty of each item. Mean and standard deviations appeared to provide an index of difficulty. There did not appear to be a very wide range of difficulty for the items. The range from highest to lowest mean Mental Age for students passing individual items was only about 1 1/4 years.

DISCUSSION OF FINDINGS

As a result of 1973-74 field-test activities, it was determined that the correlation between assessment of student performance using the checklist format of the 80 item TMR Assessment-Profile correlated at .80 with assessment of student performance using the corresponding 80 criterion test items. In addition, a test-retest reliability of .92 and an inter-rater reliability of .84 were established for the TMR Assessment-Profile. On the basis of these findings, it appears that this checklist instrument is highly reliable in and of itself and correlates very well with the use of corresponding criterion test items as an evaluation alternative.

It should also be noted that the checklist format when compared with the

criterion test item alternative was easier for teachers to use, did not disrupt the ongoing instructional program, and provided a more condensed though equally expansive profile of student ability. While it took two school days to evaluate some students using the 80 criterion test items, it took only from five to ten minutes to complete a checklist on the same student. This time factor when coupled with the difference in the cost of materials for these two assessment alternatives makes the checklist by far the more efficient instrument. When one considers these factors of usability and efficiency combined with the high reliability of the TMR Assessment-Profile and the strong correlation of this checklist instrument with its criterion test item alternative, it appears that the checklist format of the TMR Assessment-Profile is a highly desirable and effective instrument for evaluating the performance of TMR students.

Appendix A

Directions for Completing TMR Assessment-Profile

This form is being used to gather information on the student's abilities on 80 selected skills. Your observations of the student since the beginning of the school year are the basis for your judgment of the student's abilities.

DIRECTIONS:

"YES" Place a check (X) in this column if the student is able to correctly begin and complete the skill upon request.
(E.g. #1, Request: "Count from 1 to 5."
Student responds: "1, 2, 3, 4, 5."
E.g. #2, Request: "Shampoo your hair."
Student responds by turning on water, wetting hair, applying shampoo, washing, rinsing, and drying hair, turning off water, and capping the shampoo bottle.)

Checking "YES" means that the student will have little or no difficulty performing the skill upon request.

"PARTIALLY" Place a (X) in this column if the student is able to perform part of the skill upon request.
(E.g. #1, Request: "Count from 1 to 5."
Student responds: 1, 2, 3, 4."
E.g. #2, Request: "Shampoo your hair."
Student responds by turning on water.)

Checking "PARTIALLY" means that the student can do part (large or little) of the skill. However, he is not able to perform the entire skill upon request.

"NO" Place a (X) in this column if the student is not able to perform any part of the skill upon request.
(E.g. #1, Request: "Count from 1 to 5."
Student is non-verbal or gives no response.
E.g. #2, Request: "Shampoo your hair."
Student makes no response which is needed to shampoo hair.)

Checking "NO" means that the skill is beyond the student's abilities or that he will be unable to perform any part of it upon request.

TMR ASSESSMENT - PROFILE

STUDENT:_____ TEACHER:_____

NO	PARTIALLY	YES		
			CLEANLINESS	
___	___	___	1. Washes, dries hands	
___	___	___	2. Washes, dries face	
___	___	___	3. Brushes teeth	
___	___	___	4. Wipes food from face	
___	___	___	5. Wipes food from hands	
			EATING	
___	___	___	6. Picks up, chews, swallows solid food	
___	___	___	7. Drinks from glass	
___	___	___	8. Uses spoon	
___	___	___	9. Uses fork	
___	___	___	10. Uses knife	
			SAFETY	
___	___	___	11. Knows dangerous objects	
___	___	___	12. Knows objects harmful if ingested	
___	___	___	13. Knows objects harmful to eyes	
___	___	___	14. Knows objects harmful to ears	
___	___	___	15. Knows objects harmful to nose	
			DRESSING AND UNDRESSING	
___	___	___	16. Uses zipper (on person)	
___	___	___	17. Uses buttons (on person)	
___	___	___	18. Uses snaps (on person)	
___	___	___	19. Puts on shoes	
___	___	___	20. Puts on socks	
			HEALTH	
___	___	___	21. Urinates appropriately	
			GROOMING	
___	___	___	22. Combs hair	
___	___	___	23. Brushes hair	
___	___	___	24. Applies deodorant	
___	___	___	25. Knows own clothing	
___	___	___	26. Knows clothes appropriate for weather conditions	
1	2	3		

NO	PARTIALLY	YES	
			SELF KNOWLEDGE
___	___	___	27. States whole name
___	___	___	28. States street address
___	___	___	29. States telephone number
___	___	___	30. Knows own sex
			SOCIAL INTERACTION
___		___	31. Interacts positively in physical actions
___		___	32. Interacts positively verbally
___		___	33. Follows rules in group situations
___		___	34. Works cooperatively on tasks
___		___	35. Respects, cares for property
			POSITION IN SPACE
___	___	___	36. Recognizes major body parts
___	___	___	37. Names major body parts
___	___	___	38. Understands concepts: up-down
___	___	___	39. Understands concepts: around-through
___	___	___	40. Understands concepts: front-back
			MOTOR COORDINATION
___	___	___	41. Grasps, picks up an object
___	___	___	42. Climbs stairs
___	___	___	43. Steps accurately
___	___	___	44. Throws underhand
___	___	___	45. Runs
___	___	___	46. Opens, closes doors
			RECREATION AND SPORTS
___	___	___	47. Behaves safely on playground
			LISTENING SKILLS
___	___	___	48. Understands concepts: loud-soft
			SPOKEN LANGUAGE
___	___	___	49. Repeats ten food words after teacher
___	___	___	50. Independently produces ten food words
___	___	___	51. Recognizes ten food words (spoken)
___	___	___	52. Comprehends ten food words (spoken)
___	___	___	53. Repeats three word phrase
___	___	___	54. Dials private dial telephone
1	2	3	

NO	PARTIALLY	YES		
			WRITTEN LANGUAGE	
___	___	___	55. Writes whole name	
___	___	___	56. Writes street address	
___	___	___	57. Writes phone number	
			READING	
___	___	___	58. Names ten flashcard safety words	
___	___	___	59. Comprehends ten safety words (written)	
___	___	___	60. Names ten flashcard public sign words	
___	___	___	61. Names ten flashcard public building title words	
___	___	___	62. Comprehends ten public sign words (written)	
			COUNTING AND NUMERAL RECOGNITION	
___	___	___	63. Counts orally (1 - 10)	
___	___	___	64. Counts objects (1 - 10)	
___	___	___	65. Names flashcard numbers (0 - 10)	
___	___	___	66. Understands concepts: more-less	
___	___	___	67. Selects designated number from group	
			MONEY CONCEPTS	
___	___	___	68. Recognizes coins	
___	___	___	69. Names coins	
___	___	___	70. Reads prices under $1.00	
___	___	___	71. Exchanges money 1¢ - 10¢	
			HOUSEKEEPING	
___	___	___	72. Picks things up, puts them away	
___	___	___	73. Empties trash	
___	___	___	74. Sweeps floor	
___	___	___	75. Cleans sink	
			HOMEMAKING	
___	___	___	76. Puts away ironed clothes	
___	___	___	77. Prepares water, washes, rinses dishes	
___	___	___	78. Opens bottles	
___	___	___	79. Opens jars	
___	___	___	80. Hangs up clothes on clothesline	
1	2	3		

Appendix B

CRITERION TEST ITEM

WASHING AND DRYING

(This criterion test item corresponds to item #1 on the TMR Assessment-Profile.)

SUBJECT: _____ TEACHER: _____
(last) (first) (initial)

To test this objective you will need a sink, water, soap, and a cloth towel. Measure this objective when the student's hands are dirty. Tell the student to wash his hands with soap and water and dry them. You may give the instructions twice but do not prompt additionally either verbally after the student begins or by demonstration at any time.

1. Turns on water ____
2. Applies water to hands ____
3. Applies soap ____
4. Works soap over entire area of hands ____
5. Rubs hands together ____
6. Rinses soap off hands ____
6. Rinses off all soap ____
7. Turns off water ____
8. Picks up towel ____
9. Dries hands with towel ____
10. Both hands clean ____
11. Both hands dry ____

Total Score _____